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In the claims:

1. (Currently Amended) A multipurpose sensing system for a vehicle comprising:

at least one optic directed at and non-fiber optically monitoring a plurality of separate non-adjacent viewing areas;

a single vision sensor coupled to said at least one optic and generating a plurality of object detection signals corresponding to said plurality of separate non-adjacent viewing areas; and

a controller coupled to said vision sensor and generating a plurality of safety system signals in response to said plurality of object detection signals.

2. (Original) A system as in claim 1 wherein said vision sensor generates a first object detection signal and a second object detection signal and wherein said controller generates a first safety system signal in response to said first object detection signal and a second safety system signal in response to said second object detection signal.

3. (Original) A system as in claim 1 wherein said at least one optic comprises:

a first focal point that corresponds to objects on the vehicle; and

a second focal point that corresponds to objects external to the vehicle.

4. (Original) A system as in claim 3 wherein said first focal point corresponds to moisture on a vehicle window.

5. (Original) A system as in claim 1 wherein said at least one optic comprises:

a first focal point that corresponds to objects within the vehicle; and

a second focal point that corresponds to objects external to the vehicle.

6. (Original) A system as in claim 5 wherein said first focal point corresponds to vehicle occupants within the vehicle.

7. (Original) A system as in claim 1 wherein said vision sensor is selected from a camera, a charged coupled device, an infrared detector, and at least one photodiode.

8. (Original) A system as in claim 1 further comprising a signal processor receiving and formatting said plurality of object detection signals for reception by said controller.

9. (Original) A system as in claim 1 wherein said vision sensor generates said plurality of object detection signals simultaneously.

10. (Original) A system as in claim 1 wherein the system is configured as to be mounted within an overhead console.

11. (Original) A system as in claim 1 wherein said controller performs sensing system operations selected from at least one of adaptive cruise control, lane-keeping control, lane-departure control, window clearing control, collision avoidance control, and countermeasure control in response to said plurality of object detection signals.

12. (Original) A system as in claim 1 wherein said controller determines occupant characteristics in response to said plurality of object detection signals.

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13. (Original) A system as in claim 1 wherein said controller determines existence of a child safety seat in response to said plurality of object detection signals.

14. (Original) A system as in claim 1 further comprising a reflective device, said vision sensor generating at least one object detection signal in response to at least a portion of a view from said reflective device.

15. (Original) A system as in claim 12 wherein said reflective device is a mirror.

16. (Currently Amended) A method of performing a plurality of sensing system operations within a vehicle comprising:

monitoring a plurality of separate non-adjacent viewing areas via a non-multi conduit transmission medium;

generating a plurality of object detection signals from a single vision sensor corresponding to said plurality of separate non-adjacent viewing areas;

generating a plurality of safety system signals in response to said plurality of object detection signals; and

performing the plurality of sensing system operations in response to said plurality of safety system signals.

17. (Currently Amended) A method as in claim 16 wherein monitoring a plurality of separate non-adjacent viewing areas comprises monitoring a first viewing area on the vehicle and a second viewing area external to the vehicle.

18. (Currently Amended) A method as in claim 16 wherein monitoring a plurality of separate non-adjacent viewing areas comprises

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monitoring a first viewing area internal to the vehicle and a second viewing area external to the vehicle.

19. (Original) A method as in claim 16 wherein generating a plurality of object detection signals comprises generating at least one object detection signal in response to at least a portion of a view from a reflective device.

20. (Currently Amended) A multipurpose sensing system for a vehicle comprising:

a multi-focal lens having a first focal point corresponding to a first viewing area and a second focal point corresponding to a second viewing area;

a reflective device directed at said second viewing area;

a vision sensor coupled to said ~~bi-focal~~ multi-focal lens and generating a first object detection signal with respect to said first viewing area and a second object detection signal with respect to said second viewing area as is reflected from said reflective device; and

a controller coupled to said vision sensor and generating a first safety system signal in response to said first object detection signal and a second safety system signal in response to said second object detection signal.